NP311

RS-232/485/422 serial device server

User manual

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【Summarize】

NP312 is a high performance Ethernet to RS232/485/422 Ethernet bridge. NP312 obtain UDP or TCP data package, separate data package inside Ethernet, transfer the data through RS-232/485/422 interface according to the NP312 setting demand. NP312 obtain data from RS-232/485/422 interface, pack to UDP or TCP format inside NP312, transfer the data to the device through Ethernet port.

【Package checklist】

NP312 is packed with the following items. If any of these items is missing or damaged, please contact your customer service representative for support.

- NP311
- User manual
- Power adapter 5VDC
- Straight network cable
- Software CD-ROM
- Product Warranty booklet

Optional accessories:

- DIN-Rail Mounting Kit (35mm)

【Feature】

- Provide RS-232/RS-485/RS-422 3-in-1 serial interface
- Support Socket access
- Support Sever and Client mode
- Real COM/TTY driver for Windows and Linux
- Support TCP, UDP, ARP, ICMP and DHCP protocol
- Pair Connection mode for connecting two serial devices over a network without a PC
- Support pass gateway, router communication
- Support PPPOE function
- Easy-to-use Windows Utility for mass installation
- Support On-the-fly
- DIN-rail mounting and Wall mounting optional

【Specification】

Ethernet interface

Standard: 10Base-T

Protocol: Support TCP, UDP, APR, ICMP and DHCP protocol

Signal: Rx+, Rx-, Tx+, Tx-

Speed: 10/100Mbps

Working: Full duplex/Half duplex

Working format: Support Server and Client format

Flash memory: 512 byte

Transmission: 100m

Surge protect: 1.5KV ESD

Port of type: RJ-45

Serial interface

Support EIA RS-232, RS-422,RS-485 standard

RS-232 signal: TXD, RXD, RTS, CTS, DTR, DSR, DCD, GND
RS-422 signal: Tx+, Tx-, Rx+, Rx-, GND
RS-485 signal: Data+, Data-, GND
Parity: None, Even, Odd, Space, Mark
Data bit: 7bit, 8bit
Stop bit: 1, 1.5, 2
Baud rate 150bps～115200bps
Flow control: RTS/CTS or non-flow control
RS485 data direction: ADDC (Auto data direction Control)
Loading: RS-485/422 side support 32 nodes (optional 128 nodes)
Transfer distance: RS-485/422 side: 1200m, RS-232 side: less than 15m
Serial line protect: 1500W surge protect, 15KV magnetic isolation
Port of type: RS-232: DB-9 male,
RS-485/422: 4 bit terminal block

Power supply

Power supply input: 5VDC
Consumption: 300mA

Environment:

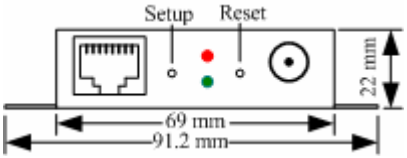
Working temperature: -20℃～60℃, 5～95% RH
Storage temperature: -25℃～85℃, 5～95% RH

Dimension:

Color: White Blue
L×W×H: 100mm×69mm×22mm
Material: Iron Shell)
Weight: 230g

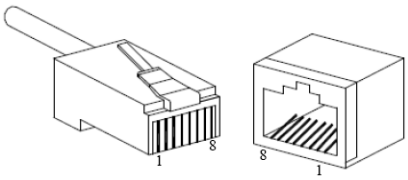
【Interface and LED indicator】

10/100Base-T（X） Ethernet port:



Device connected to Ethernet: Red LED flash
Ethernet port has data transfer: Green LED flash

The 10/100BaseT(X) ports located on NP312 top panel. The pin of RJ45 port display as follows. Connect by UTP or STP. The connect distance is no more than 100m. 100Mbps is used 100Ωof UTP 5 , 10Mbps is used 100Ωof UTP 3, 4, 5.



RJ 45 port supports MDI/MDI-X operation can connect the PC, Server, Converter and HUB. Pin 1, 2, 3, 6 Corresponding connection in MDI. 1→3, 2→6, 3→1, 6→2 are used as cross wiring in the MDI-X port of Converter and HUB.10Base-T/100Base-TX are used in MDI/MDI-X, the PIN define in the table as below.

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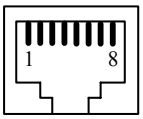
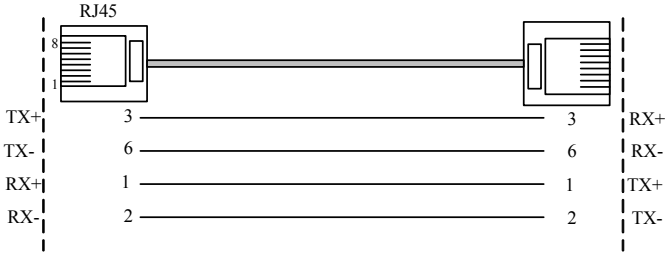


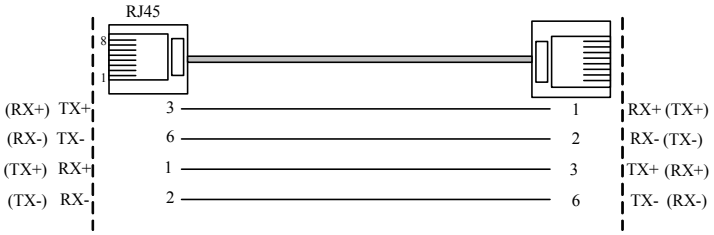
pin	MDI signal	MDI-X signal
1	TX+	RX+
2	TX-	RX-
3	RX+	TX+
6	RX-	TX-
4, 5, 7, 8	—	—

Note: “TX±” transmit data±, “RX±” receive data±，“—”not use。

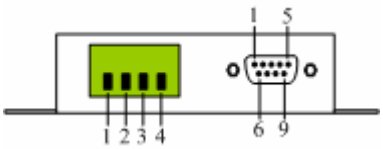
MDI（straight-through cable）：



MDI-X（Cross-over cable）



RS-232/485/422 port



RS-485/422 side: 4 bit terminal block.

1 T+/Data+ **2** T-/Data-

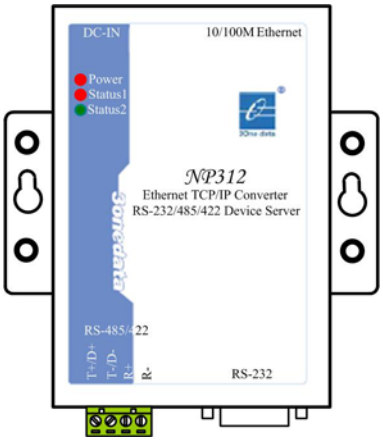
3 R+ **4** R-

RS-232 side: DB9M (Male)

1 DCD **2** RXD **3** TXD **4** DTR

5 GND **6** DSR **7** RTS **8** CTS

Obverse:



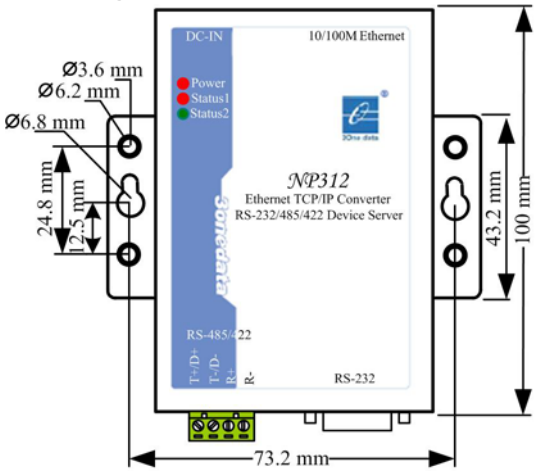
LED indicator:

PWR	Power supply indicate, ON: Light
STATUS1	Detect Ethernet interfere, light when working
STATUS2	State light, twinkling when communication

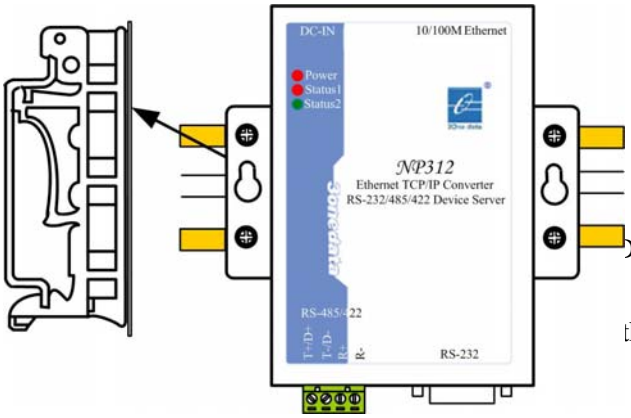
【Installation】

NP312 provides DIN-rail and wall mounting two types of installation.

Wall-mounting



DIN-Rail mounting installation:



DC

through cable

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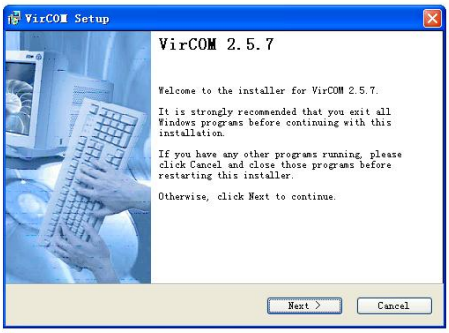
【Software installation and setting】

1 Software installation

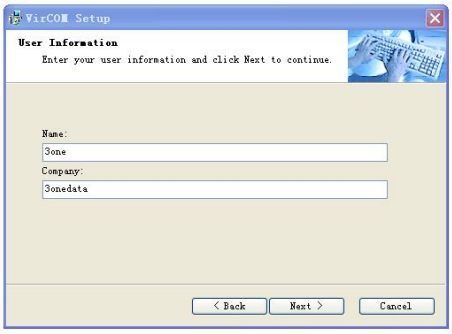
Open the CD-ROM, running the install procedure,

You will see a screen as follows:

Knock [Next] as follows screen


VirCOM Setup
VirCOM 2.5.7
Welcome to the installer for VirCOM 2.5.7.
It is strongly recommended that you exit all Windows programs before continuing with this installation.
If you have any other programs running, please click Cancel and close those programs before restarting this installer.
Otherwise, click Next to continue.
Next >
Cancel

Click “Next”



You can change “**Name**”、“**Company**”, click “**Next**”

VirCOM Setup
Shortcut Folder
Select a shortcut folder and click Next to continue.
Setup will add shortcut icons to the folder indicated below. If you don't want to use the default folder, you can either type a new name, or select an existing folder from the list.
Shortcut Folder:
VirCOM
< Back
Next >
Cancel

You can use “**Change…**” revise the location of the software installation

VirCOM Setup
Installation Folder
Select an installation folder and click Next to continue.
The software will be installed in the folder listed below. To install to a different folder, either type in a new path, or click Change to browse for an existing folder.
Install VirCOM to:
C:\Program Files\VirCOM
Change ...
Space required on drive:
3 MB
Space available on selected
130 MB
< Back
Next >
Cancel

Click “**Next**”

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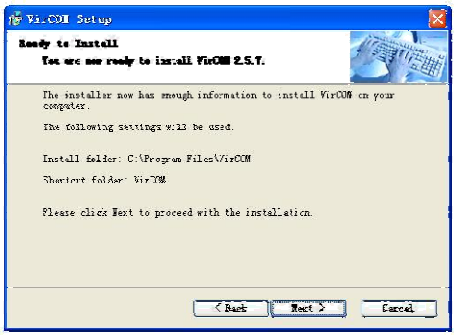
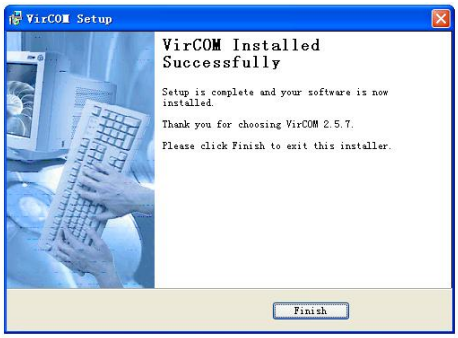

Vir_COM Setup
Ready to Install
The installer now has enough information to install VirCOM on your computer.
The following settings will be used.
Install folder: C:\Program Files\VirCOM
Please click Next to proceed with the installation.
< Back
Next >
Cancel

Click "**Next**"

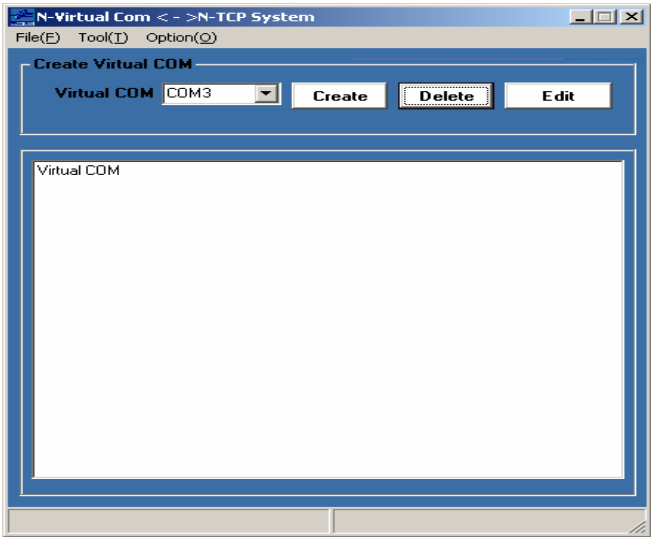

VirCOM Setup
VirCOM Installed Successfully
Setup is complete and your software is now installed.
Thank you for choosing VirCOM 2.5.7.
Please click Finish to exit this installer.
Finish

Click "**Finish**", Finish installation.

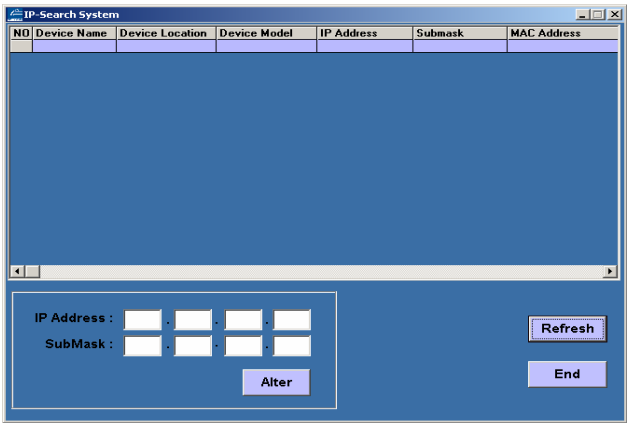
2 **Virtual COM port setting:**

Connect NP312 to you device (NP312 support RS232, RS485, RS422 3 type serial interface, do not use DIP switch, you can connect accord to your device interface), another side connect Ethernet, plug into 5VDC power supply.

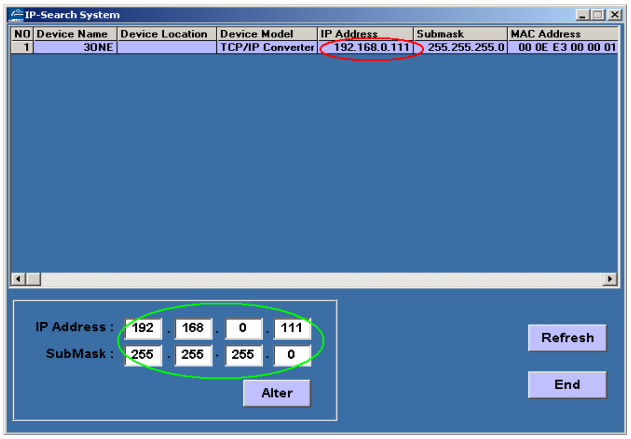
Click "Start"-----"Running", Running the Vir_COM.exe（You can see the screen as follows）:



Choose **Tool** menu **IP-Search**（Using this option searching NP312 IP address in the Ethernet and providing revise operation）option. You will send a serene as follows:

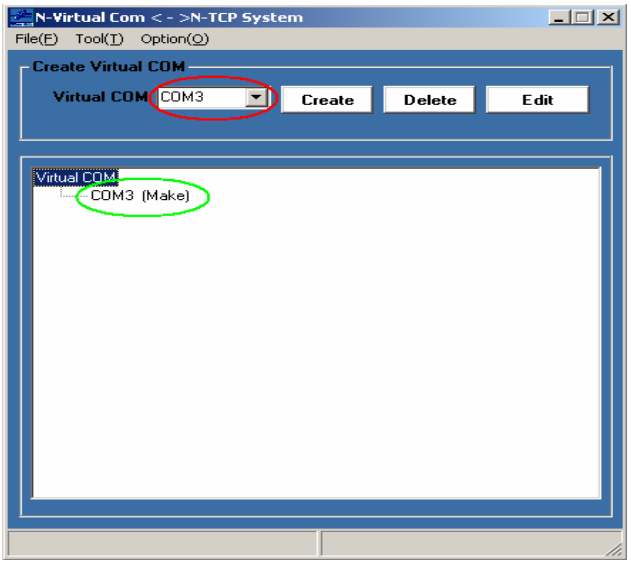


Click **Refresh** button, Found NP312 IP address（Red circle as follows:）

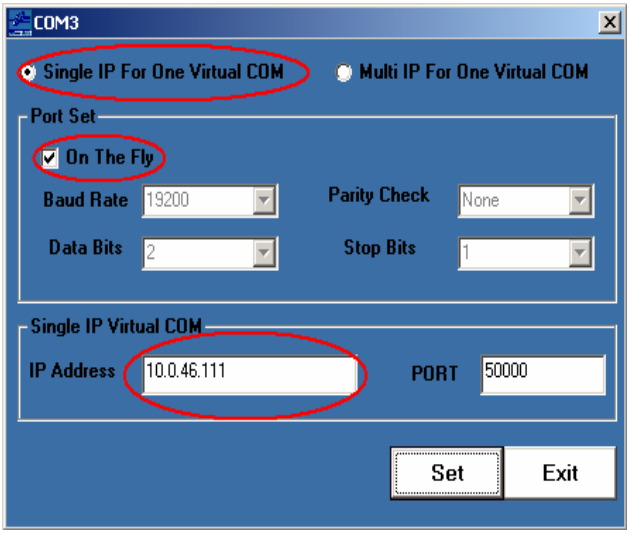


Click the NP312 IP address of the red circle, the IP address will present to the green circle, setting the IP address to make sure that the IP address locate in the same network segment, Click **Alter** after appearing correct hint, then click **Refresh** to check the IP address changed or not in the red circle

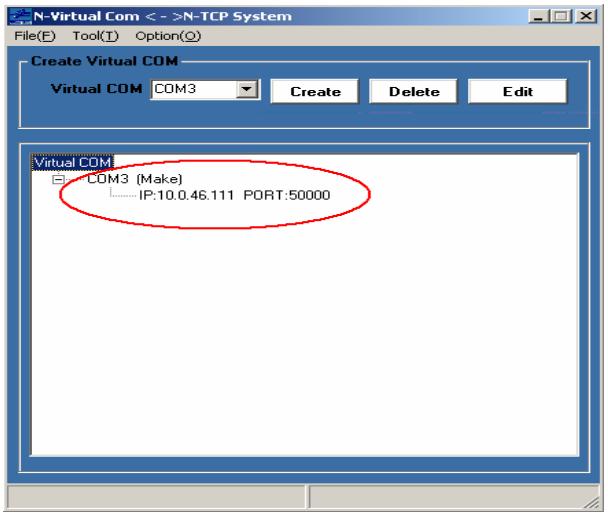
Create virtual serial port(as follows)



Click button on the red circle choosing the COM port, Click Create COM port, appear green circle COM port, and appear COM port setting small screen, you can setting parameter to this COM port. As follows:



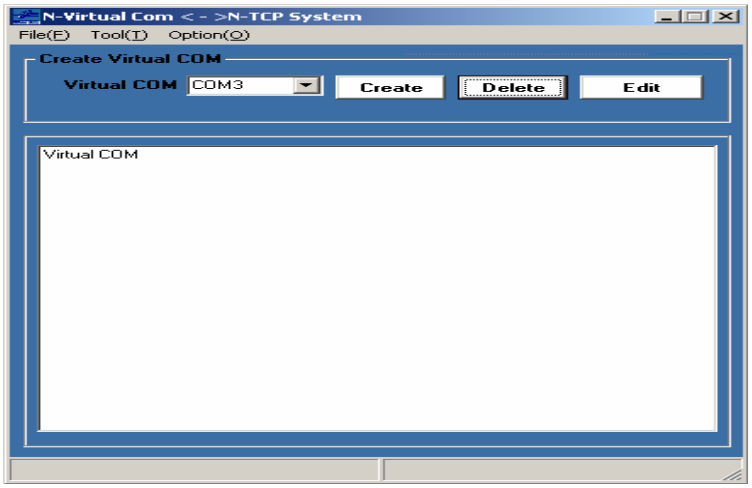
Choose **Single IP For One Virtual COM**（1 serial port communicate with multi server that locate in 1 IP address）option, Choose **One The Fly**, Automatic obtain serial device parameter, do not set by hand, you can also do not choose One The Fly to setting the parameter by hand. Input the IP address into the IP Address, click “Set” button, you will see the screen as follows:



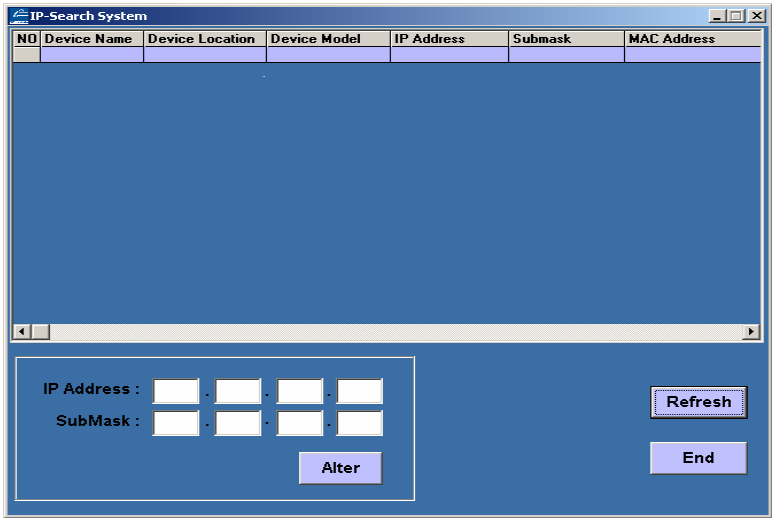
You can delete or Edit the COM port through “Delete” and ”Edit”
Finish these operation, the device can communicate to the PC.

3 WinSock access setting

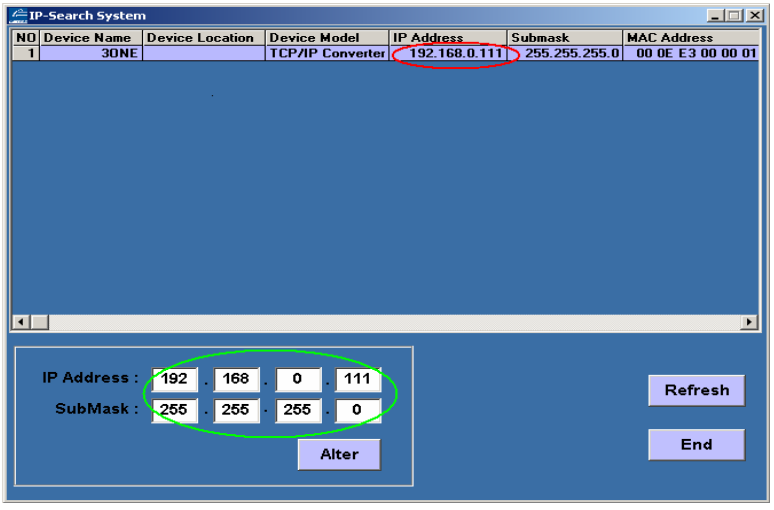
Knock "**Start**" →"**procedure**" →"**VirCOM**" →"**VirCOM.exe**" (knock the Vir_COM.exe on the desktop), you will see screen as follows



Knock "**Tool**"->"**IP-Search**"



Knock **"Refresh"** button，procedure will search local network segment's NP312, and display the device as follows diagram. If you want to modification the IP address of NP312，Knock the red circle as follows. Then you will see the blue circle will display the NP312 IP address and SubMask.



Knock **"Alter"** button，remember the modification IP address. If do not modification，just remember the IP address of NP312.

Connect the IP address of the NP312 in the WinSock procedure.

【High level setting】

1. Set PPPOE function:

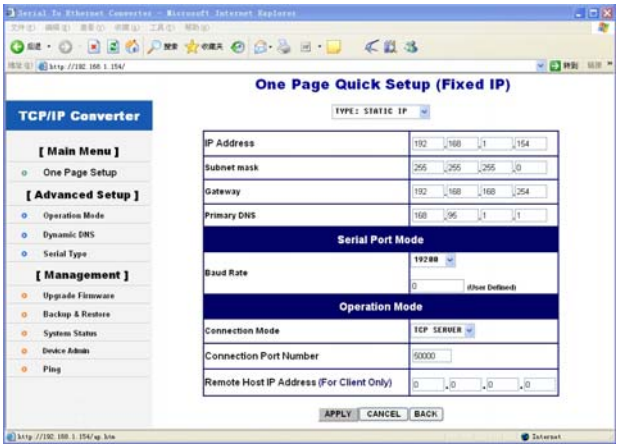
When used the NP312, It must connect Internet and communication with long-range device. But most of the serial device do not have Internet function. The PPPOE function of the NP312 can satisfy this requirement, it can connect the Internet through dial-up Internet, after connected to the serial device, it can communication with long-range device.

Step 1: Click "**Start**"→ "**Procedure**"→ "**VirCOM**" → "**Vir_COM.exe**"

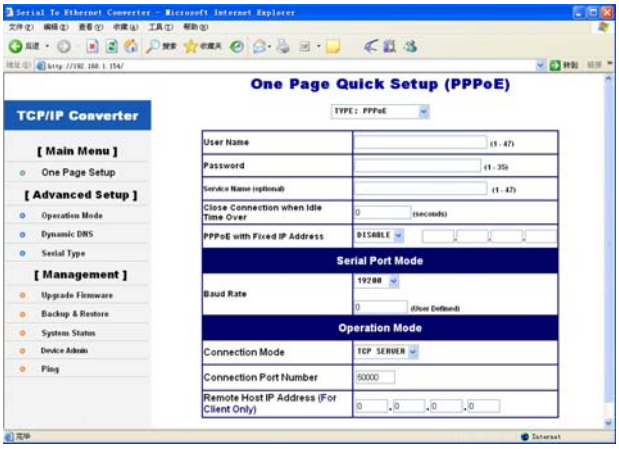
Step 2: Choose **Tool** menu **IP-Search**

Step 3: Click **Refresh** button, search NP312 IP address.

Step 4: Double click IP address that will be set PPPOE function, then enter the setting of IE interface. Management IP address: 192.168.200.200, Input the **User name (admin)** and **password (admin)** into dialog box and enter into setting interface.



Step 5: Chose "PPPOE" from "TYPE", enter into setting interface.



Instruction: "User Name" and "Password" input the User name and Password that telecom distributed

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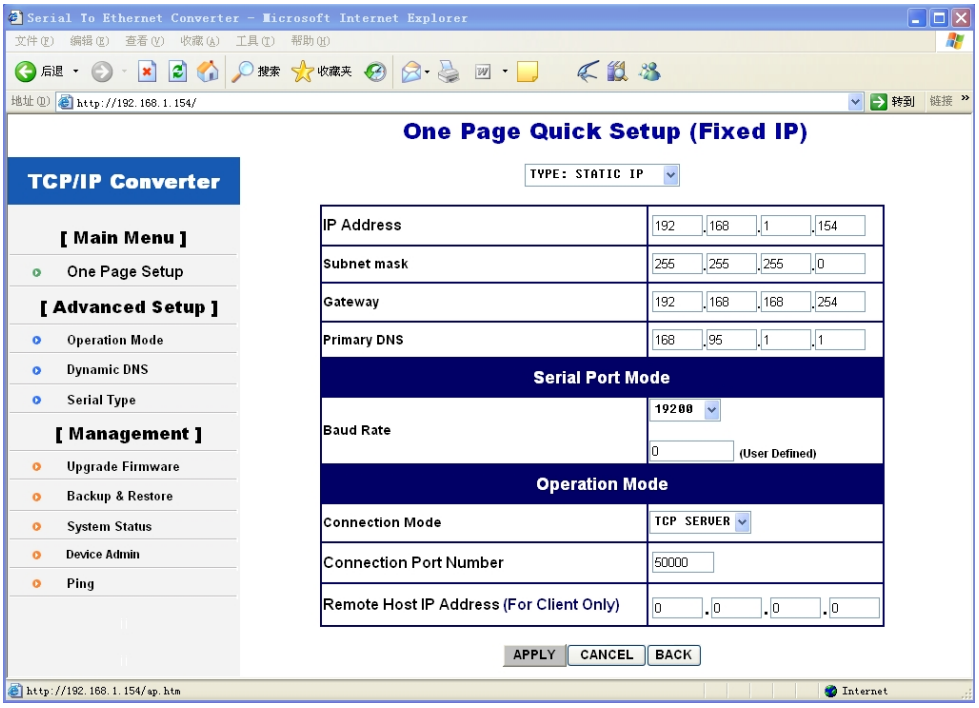
"**Connection Mode**" is connection mode optional. Usually the mode is TCP Client

"**Connection Port Number**" and "**Remote Host IP Address (For Client Only)**"are far server's port number and IP address

Note: The serial parameter of the NP312 must setting by hand with the same as the serial device.

2 Pass router setting

Connect PC through Cross-over cable, set the PC IP address to a static IP address and let the IP address locate in 192.168.200.X(X is not 200) network segment. Input 192.168.200.200 at the Web browser address. Input user name and password (default: admin). Enter into the management interface as follows:



Instruction:

"**IP Address**", "**Subnet mask**" and "**Gateway**" input the IP address, Subnet mask and Gateway that the NP312 locate the network segment.

"**Connection Mode**" is connection mode optional. Usually the mode is TCP Client

"**Connection Port Number**" and "**Remote Host IP Address (For Client Only)**"are far server's port number and IP address

Setting finished, click "**APPLY**" button

【FAQ】

1. Power adapter is incorrect and connection is incorrect

Solution: (1) Please make sure that the power adapter is 5VDC

(2) When connect to PC, use cross-over cable.

(3) When connect to HUB or Switch, use straight-through cable

2. Vircom connection is failure, LED indicator is OFF

Solution: at first, delete the virtual COM port that do not connect successful. Create a new virtual COM port and connect it, detect LED indicator is ON of OFF

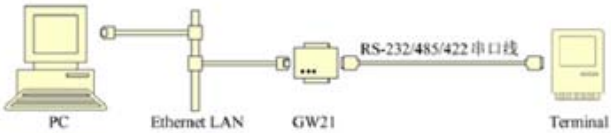
3. Parameter setting is incorrect.

Solution: Enter into the management IP address of device through IE browser, check **"Parity"**， If it is Mark/space, Parity Check must set "**space**", then you can adjust **Force Packet Transmit Time** and **Force Packet Transmit Length**.

Note: If you also have some problem about the NP312, please contact your customer service representative for support

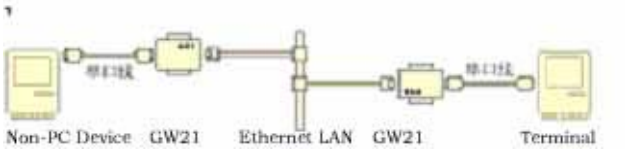
【Application】

Virtual COM port



Adopt NP312's VirCOM software virtual a COM port in the PC, user can control terminal do not change any exist software.

Virtual serial connection



Adapt to some Non-PC devices or No-need PC devices serial control system. Setting NP312 working mode and IP address correctly, user can use LAN create your virtual serial system easily.

Email: sale@3onedata.com.vn

Webside: www.3onedata.com.vn